

EXHIBIT B

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

NOKIA SOLUTIONS AND NETWORKS US LLC, and
NOKIA SOLUTIONS AND NETWORKS OY,
Petitioner,

v.

HUAWEI TECHNOLOGIES CO. LTD.,
Patent Owner.

Case IPR2017-00660
Patent 9,241,261 B2

Before JENNIFER MEYER CHAGNON,
MICHELLE N. WORMMEESTER, and CHRISTA P. ZADO,
Administrative Patent Judges.

CHAGNON, *Administrative Patent Judge.*

DECISION
Institution of *Inter Partes* Review
37 C.F.R. § 42.108

IPR2017-00660

Patent 9,241,261 B2

I. INTRODUCTION

Nokia Solutions and Networks US LLC, and Nokia Solutions and Networks Oy (collectively, “Petitioner”)¹ filed a Petition for *inter partes* review of claims 1–5, 7–13, 15–21, 23, and 24 (“the challenged claims”) of U.S. Patent No. 9,241,261 B2 (Ex. 1001, “the ’261 patent”). Paper 1 (“Pet.”). Petitioner relies on the Declarations of David Lyon, Ph.D. (Ex. 1003) and Balazs Bertenyi (Ex. 1004) to support its positions. Huawei Technologies Co. Ltd. (“Patent Owner”) filed a Preliminary Response. Paper 7 (“Prelim. Resp.”).

We have authority to determine whether to institute *inter partes* review. *See* 35 U.S.C. § 314(b); 37 C.F.R. § 42.4(a). Upon consideration of the Petition and the Preliminary Response, and for the reasons explained below, we determine that the information presented shows a reasonable likelihood that Petitioner would prevail with respect to all of the challenged claims. *See* 35 U.S.C. § 314(a). Accordingly, we institute trial as to claims 1–5, 7–13, 15–21, 23, and 24 of the ’261 patent.

A. *Related Proceedings*

The parties indicate that the ’261 patent is the subject of the following ongoing district court proceeding: *Huawei Techs. Co. v. T-Mobile US, Inc.*, Case No. 2:16-cv-00057 (E.D. Tex.). Pet. 1; Paper 6, 2.

B. *The ’261 Patent*

The ’261 patent is titled “Method, System and Device for Negotiating Security Capability When Terminal Moves,” and was filed as

¹ Petitioner identifies T-Mobile USA, Inc. and T-Mobile US, Inc. as additional real parties-in-interest. Pet. 1.

IPR2017-00660
Patent 9,241,261 B2

U.S. application No. 14/303,146 on June 12, 2014. Ex. 1001, at [21], [22], [54]. The '261 patent claims priority, via a chain of continuation applications, to application PCT/CN2008/072165, filed on August 27, 2008. *Id.* at [63]. The '261 patent also claims priority to two Chinese applications: CN 2007 1 0145703, filed August 31, 2007, and CN 2007 1 0151700, filed September 26, 2007. *Id.* at [30].

The '261 patent “relates to the field of wireless communication technology, and more particularly to a method and a system for negotiating a security capability when a terminal moves, a mobility management entity (MME), and a user equipment (UE).” *Id.* at 1:18–22. Specifically, the '261 patent describes a method and system by which “a UE in an idle state can negotiate a security capability” “when moving from a 2G/3G network to an LTE network.” *Id.* at 2:14–20.

Figure 1 of the '261 patent is reproduced below.

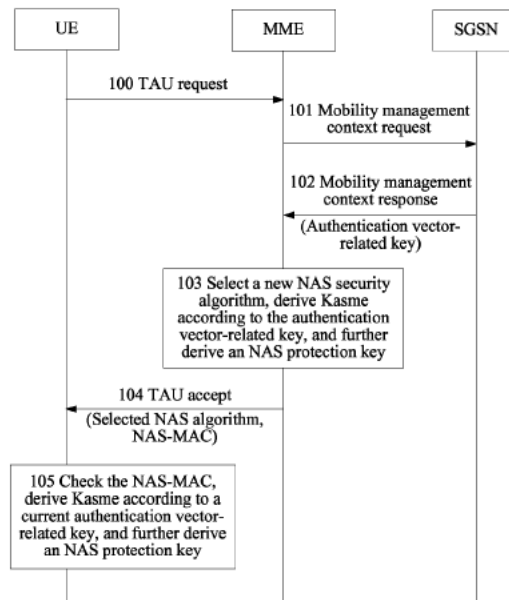


FIG. 1

IPR2017-00660

Patent 9,241,261 B2

Figure 1, reproduced above, is a flow chart of a method for negotiating a security capability when a terminal moves, according to an embodiment of the '261 patent. *Id.* at 4:3–5. According to the method illustrated in Figure 1, a UE sends a Tracking Area Update (TAU) request to an MME, at step 100. *Id.* at 4:47. The TAU request includes, among other things, the “security capability information supported by the UE,” which “includes an [non-access stratum (NAS)] security algorithm (an NAS integrity protection algorithm and/or an NAS confidentiality protection algorithm).” *Id.* at 4:54–64. At steps 101 and 102, “the MME acquires an NAS security algorithm supported by the UE, and sends a mobility management context request message to an SGSN. After receiving the message, the SGSN sends a mobility management context response message carrying an authentication vector-related key to the MME.” *Id.* at 4:65–5:3.

At step 103, “the MME selects a new NAS security algorithm, according to the NAS security algorithm supported by the UE and an NAS security algorithm supported by the MME as well as an NAS security algorithm allowed by the system.” *Id.* at 5:32–36. At step 104, “the MME generates a TAU accept message carrying the selected NAS security algorithm.” *Id.* at 5:41–42. At step 105, “the UE receives the TAU accept message carrying the NAS security algorithm selected by the MME, and acquires the negotiated NAS security algorithm.” *Id.* at 5:54–56. The UE then “derives a root key . . . according to a current authentication vector-related key . . . , and derives an NAS protection key according to the root key.” *Id.* at 5:57–63.

IPR2017-00660

Patent 9,241,261 B2

C. Illustrative Claims

Of the challenged claims, claims 1, 9, and 17 are independent. Claims 2–5, 7 and 8 depend from claim 1; claims 10–13, 15, and 16 depend from claim 9; claims 18–21, 23 and 24 depend from claim 17. Independent claims 1, 9, and 17 of the '261 patent are reproduced below, and are illustrative of the challenged claims. For convenience of the discussion, the claims are annotated with Petitioner's labeling of the claim elements.

1. [*I Pre*] A method of security negotiation for idle state mobility from a first network to a long term evolution (LTE) network using a mobility management entity (MME), the method comprising:

[*IA*] transmitting an authentication vector-related key from a service general packet radio service (GPRS) support node (SGSN) in the first network to the MME;

[*IB*] receiving security capabilities of a user equipment (UE) including non-access stratum (NAS) security capabilities of the UE from the UE;

[*IC*] selecting a NAS security algorithm supported by the NAS security capabilities of the UE;

[*ID*] sending a message that indicates the selected NAS security algorithm to the UE; and

[*IE*] deriving a NAS protection key with the selected NAS security algorithm from the authentication vector-related key.

Ex. 1001, 11:54–12:2.

9. [*9 Pre*] A communications system comprising:

[*9A*] an acquisition module that receives from a user equipment (UE) security capabilities of the UE including non-access stratum (NAS) security capabilities of the UE;

[*9B*] a service general packet radio service (GPRS) support node (SGSN) in a first network that sends an authentication vector-related key to the acquisition module;

IPR2017-00660

Patent 9,241,261 B2

[9C] a selection module that selects a NAS security algorithm supported by the NAS security capabilities of the UE and [9D] sends a message that indicates the selected NAS security algorithm to the UE; and

[9E] a key derivation module that derives a NAS protection key with the selected NAS security algorithm from the authentication vector-related key, wherein the communications system provides security negotiation for idle state mobility from the first network to a long term evolution (LTE) network;

[9F] wherein the acquisition module, the selection module and the key derivation module are included in a mobility management entity (MME).

Id. at 12:28–47.

17. [17 Pre] A communications system that provides security negotiation for idle state mobility from a first network to a long term evolution (LTE) network comprising:

[17A] a mobility management entity (MME) that receives security capabilities of a user equipment (UE) including non-access stratum (NAS) security capabilities of a UE from the UE; and

[17B] a service general packet radio service (GPRS) support node (SGSN) in the first network that sends an authentication vector-related key to the MME,

[17C] wherein the MME is in the LTE network and

[17D] selects a NAS security algorithm supported by the NAS security capabilities of the UE,

[17E] sends a message that indicates the selected NAS security algorithm to the UE, and

[17F] derives a NAS protection key with the selected NAS security algorithm from the authentication vector-related key.

Id. at 13:6–23.

IPR2017-00660

Patent 9,241,261 B2

D. The Applied References

Petitioner relies on the following references in the asserted grounds.
Pet. 2.

3GPP, *Technical Specification Group Services and System Aspects; GPRS enhancements for E-UTRAN access (Release 8) (3GPP TS 23.401 V1.1.0)*, (July 2007) (Ex. 1005, “TS 23.401”);

3GPP, *Technical Specification Group Services and System Aspects; Rationale and track of security decisions in Long Term Evolved (LTE) RAN / 3GPP System Architecture Evolution (SAE) (Release 8) (3GPP TR 33.821 V0.4.0)*, (July 2007) (Ex. 1006, “TR 33.821”);

3GPP, *Technical Specification Group Services and System Aspects; General Packet Radio Service (GPRS); Service description; Stage 2 (Release 7) (3GPP TS 23.060 V7.4.0)*, (Mar. 2007) (Ex. 1007, “TS 23.060”);

U.S. Patent No. 8,462,742 B2, issued June 11, 2013, to Song et al. (Ex. 1008, “Song”).

E. The Asserted Grounds

Petitioner challenges claims 1–5, 7–13, 15–21, 23, and 24 as having been obvious under 35 U.S.C. § 103(a) in view of the following three combinations of references: TS 23.401 and TR 33.821; TS 23.060 and TR 33.821; and Song and TR 33.821. Pet. 2, 17–73.

II. ANALYSIS

A. Claim Construction

In an *inter partes* review, claim terms in an unexpired patent are given their broadest reasonable construction in light of the specification of the

IPR2017-00660

Patent 9,241,261 B2

patent in which they appear. *See* 37 C.F.R. § 42.100(b); *Cuozzo Speed Techs. LLC v. Lee*, 136 S. Ct. 2131, 2144–46 (2016) (upholding the use of the broadest reasonable interpretation standard). Under the broadest reasonable construction standard, claim terms generally are given their ordinary and customary meaning, as would be understood by one of ordinary skill in the art in the context of the entire disclosure. *See In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). The claims, however, “‘should always be read in light of the specification and teachings in the underlying patent,’” and “[e]ven under the broadest reasonable interpretation, the Board’s construction ‘cannot be divorced from the specification and the record evidence.’” *Microsoft Corp. v. Proxyconn, Inc.*, 789 F.3d 1292, 1298 (Fed. Cir. 2015) (citations omitted). Further, any special definition for a claim term must be set forth in the specification with reasonable clarity, deliberateness, and precision. *See In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994). In the absence of such a definition, however, limitations are not to be read from the specification into the claims. *In re Van Geuns*, 988 F.2d 1181, 1184 (Fed. Cir. 1993).

The parties propose constructions for several claim terms. *See* Pet. 10–15; Prelim. Resp. 5–9. For purposes of this Decision, we address Petitioner’s arguments regarding certain limitations of claim 9—namely, the recited “acquisition module,” “selection module,” and “key derivation module.” Pet. 12–15. These “modules” are part of the “communications system” recited in claim 9. In the co-pending district court proceeding, Petitioner has argued that these limitations are means-plus-function limitations that lack sufficient corresponding structure. *See* Pet. 14; Ex. 1019, 41–47 (the parties’ Joint Claim Construction and Prehearing

IPR2017-00660

Patent 9,241,261 B2

Statement in the co-pending district court proceeding). For purposes of this *inter partes* review Petition, Petitioner asserts that “the broadest reasonable interpretation of each of these limitations is any software or hardware capable of performing the claimed function.” Pet. 14.

Patent Owner does not address the construction of the “module” limitations of claim 9 and related dependent claims. At this stage of the proceeding, we have not reached a final decision with regard to whether such limitations are means-plus-function limitations under 35 U.S.C. § 112, ¶ 6, which requires identification of sufficient structure, material, or acts in the specification. *See In re Donaldson Co.*, 16 F.3d 1189, 1193 (Fed. Cir. 1994) (en banc). We, however, are able to analyze Petitioner’s asserted prior art grounds without making such a determination at this stage of the proceeding. For purposes of this Decision on Institution, we construe these terms to mean software or hardware for performing the steps recited in the claims.

We direct the parties, in their subsequent briefing in this proceeding, to address specifically whether or not the “module” limitations of claim 9 invoke 35 U.S.C. § 112, ¶ 6. If so, the parties are directed to identify the corresponding structure from the Specification. If not, the parties are directed to explain their reasoning and address the construction of the terms under the broadest reasonable interpretation.

Upon review of the parties’ contentions and supporting evidence, we determine no issue in this Decision requires express construction of any other claim terms. *See, e.g., Wellman, Inc. v. Eastman Chem. Co.*, 642 F.3d 1355, 1361 (Fed. Cir. 2011) (“[C]laim terms need only be construed ‘to the extent necessary to resolve the controversy.’”) (quoting *Vivid Techs., Inc. v.*

IPR2017-00660

Patent 9,241,261 B2

Am. Sci. & Eng'g, Inc., 200 F.3d 795, 803 (Fed. Cir. 1999)). Accordingly, for purposes of this Decision, we do not provide any express claim construction beyond that discussed above.

B. Principles of Law

A claim is unpatentable under 35 U.S.C. § 103(a) if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *See KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art²; (3) the level of ordinary skill in the art; and (4) objective evidence of nonobviousness.³ *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

In that regard, an obviousness analysis “need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.” *KSR*, 550 U.S. at 418; *accord In re Translogic Tech., Inc.*, 504 F.3d 1249, 1259 (Fed. Cir. 2007). A prima facie case of obviousness is established when the prior art, itself, would appear to

² Patent Owner argues that Petitioner does not appropriately address this *Graham* factor. Prelim. Resp. 23–34. At this stage of the proceeding, we determine that Petitioner has sufficiently addressed the *Graham* factors, and do not find Patent Owner’s argument persuasive.

³ At this stage of the proceeding, the parties have not directed our attention to any objective evidence of non-obviousness.

IPR2017-00660

Patent 9,241,261 B2

have suggested the claimed subject matter to a person of ordinary skill in the art. *See In re Rinehart*, 531 F.2d 1048, 1051 (CCPA 1976).

We analyze the asserted grounds of unpatentability in accordance with these principles.

C. Level of Ordinary Skill in the Art

Petitioner asserts that a person of ordinary skill in the art “would have had a Bachelor’s degree in electrical engineering, computer science, or computer engineering with at least 2–3 years of experience in the telecommunications industry, including experience with operating and/or implementing [Third Generation Partnership Project (3GPP)] networks. Additional education might substitute for some of the experience, and substantial experience might substitute for some of the educational background.” Pet. 18 (citing Ex. 1003 ¶ 20). Patent Owner does not address the level of ordinary skill in the art in its Preliminary Response. For purposes of this Decision, we adopt Petitioner’s proposal regarding the level of ordinary skill in the art. The level of ordinary skill in the art further is reflected by the prior art of record. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001); *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995); *In re Oelrich*, 579 F.2d 86, 91 (CCPA 1978).

D. Whether TR 33.821 Qualifies as Prior Art

Patent Owner argues in its Preliminary Response that Petitioner has failed to show that TR 33.821 qualifies as a printed publication. *See* Prelim. Resp. 9–23. Because each of Petitioner’s asserted grounds relies, in part, on TR 33.821 (*see* Pet. 2), we first address this issue. For the reasons discussed

IPR2017-00660

Patent 9,241,261 B2

below, we determine that Petitioner has made at least a threshold showing that this asserted reference qualifies as a printed publication.⁴

To establish that TR 33.821 qualifies as a printed publication, Petitioner relies on the testimony of Mr. Bertenyi (Ex. 1004). *See* Pet. 15–17. Mr. Bertenyi details his experience with the 3GPP, including his work as chairman for 3GPP’s SA-2 Working Group, as well as for the overall TSG-SA plenary group. Ex. 1004 ¶¶ 3, 9–12. Mr. Bertenyi also testifies that “[b]ased on [his] experience [with 3GPP], [he] can speak with authority as to how the 3GPP standards are developed across the working groups and how 3GPP documents are drafted, distributed, stored and made available to the public without restriction.” *Id.* ¶ 3.

Mr. Bertenyi testifies that there are “over a hundred telecommunications industry participants” in 3GPP. *Id.* ¶ 2. According to Mr. Bertenyi:

In the ordinary course of 3GPP’s regularly-conducted business activities and pursuant to its standard business practices, 3GPP published all proposals, technical reports, technical specifications and other documents related to the development of cellular telecommunications standards to the 3GPP’s publicly-available, unrestricted, online ftp server: <http://www.3gpp.org/ftp/>. Draft proposals, technical reports, technical specifications, change requests, and other documents (“Tdocs”) were assigned a document number (“Tdoc number”) and uploaded to 3GPP’s public ftp server before, during, and after meetings. Making the documents publicly available encouraged discussion and promoted establishment of industry standards for cellular telecommunications.

⁴ Although Patent Owner has not challenged whether TS 23.401 and TS 23.060 qualify as printed publications, we note that we also are persuaded that Petitioner has made at least a threshold showing with respect to these asserted references. *See* Pet. 15–17; Ex. 1004 ¶¶ 29, 31.

IPR2017-00660

Patent 9,241,261 B2

Id. ¶ 20. Documents uploaded to the ftp server received a date and time stamp, indicating when the upload occurred. *Id.* ¶ 21. Mr. Bertenyi also provides a detailed explanation regarding the naming conventions used by 3GPP with respect to proposals, technical reports, technical specifications, and other related documents (e.g., Tdocs). *Id.* ¶¶ 13–19 (citing Ex. 1050 (3GPP TR 21.900 v6.0.0) (describing the procedures for naming and changing 3GPP documents)). Mr. Bertenyi testifies specifically that “the format for the filename of a TR document on the 3GPP server at least includes aabbb_xyz, which provides *information regarding the contents . . . of the document.*” *Id.* ¶ 15 (citing Ex. 1050, 21) (emphasis added); *see also id.* ¶ 16 (providing the same testimony with respect to TS documents on the 3GPP server). Mr. Bertenyi then identified TR 33.821 as a document that was published and made available on the ftp server. *Id.* ¶ 30.

Patent Owner argues that “regardless of whether *some* 3GPP documents were publicly available, neither Petitioner nor Mr. Bertenyi show that the *specific TR 33.821 document* relied upon was publicly accessible prior to August 31, 2007.” Prelim. Resp. 9–10.

We look to the underlying facts to make a legal determination as to whether a reference is a printed publication. *Suffolk Techs., LLC v. AOL Inc.*, 752 F.3d 1358, 1364 (Fed. Cir. 2014). The determination of whether a given reference qualifies as a prior art “printed publication” involves a case-by-case inquiry into the facts and circumstances surrounding its disclosure to members of the public. *In re Klopfenstein*, 380 F.3d 1345, 1350 (Fed. Cir. 2004). The key inquiry is whether the reference was made “sufficiently accessible to the public interested in the art” before the critical date. *In re*

IPR2017-00660

Patent 9,241,261 B2

Cronyn, 890 F.2d 1158, 1160 (Fed. Cir. 1989); *In re Wyer*, 655 F.2d 221, 226 (CCPA 1981).

According to the Federal Circuit, “[b]ecause there are many ways in which a reference may be disseminated to the interested public, ‘public accessibility’ has been called the touchstone in determining whether a reference constitutes a ‘printed publication’” under 35 U.S.C. § 102.

Kyocera Wireless Corp. v. Int’l Trade Comm’n, 545 F.3d 1340, 1350 (Fed. Cir. 2008) (quoting *In re Hall*, 781 F.2d 897, 898–99 (Fed. Cir. 1986)).

A reference is publicly accessible “upon a satisfactory showing that such document has been disseminated or otherwise made available to the extent that persons interested and ordinarily skilled in the subject matter or art exercising reasonable diligence, can locate it.” *SRI Int’l, Inc. v. Internet Security Sys., Inc.*, 511 F.3d 1186, 1194 (Fed. Cir. 2008).

At this stage of the proceeding, we credit Mr. Bertenyi’s testimony and are persuaded that this is sufficient to show that “persons interested and ordinarily skilled in the subject matter or art exercising reasonable diligence, [could have] locate[d]” TR 33.821. *See Bruckelmyer v. Ground Heaters, Inc.*, 445 F.3d 1374, 1378 (Fed. Cir. 2006).

E. Asserted Obviousness in View of TS 23.401 and TR 33.821

Petitioner asserts that claims 1–5, 7–13, 15–21, 23, and 24 are unpatentable under 35 U.S.C. § 103(a) as obvious in view of TS 23.401 and TR 33.821. Pet. 18–37. In addition to the arguments that TR 33.821 does not qualify as prior art, and that Petitioner does not appropriately address the *Graham* factors (both discussed above), Patent Owner argues that the cited combination does not disclose all elements of the independent claims

IPR2017-00660

Patent 9,241,261 B2

(Prelim. Resp. 34–52), and that Petitioner has not provided sufficient reasons to combine the references (*id.* at 67–68).

We have reviewed the parties’ contentions and supporting evidence. Given the evidence on this record, and for the reasons explained below, we determine that the information presented shows a reasonable likelihood that Petitioner would prevail on this asserted ground.

1. Summary of TS 23.401 (Ex. 1005)

TS 23.401 is a Technical Specification produced by a working group of 3GPP. Ex. 1005, Forward. TS 23.401 addresses enhancements to the existing General Packet Radio Service (GPRS) network to support access to the E-UTRAN⁵ network, and “covers both roaming and non-roaming scenarios and . . . all aspects, including mobility between E-UTRAN and pre-E-UTRAN 3GPP radio access technologies, policy control and charging, and authentication.” *Id.* § 1; Pet. 19.

⁵ E-UTRAN stands for Evolved Universal Terrestrial Radio Access Network and is another term used to describe 4G or LTE networks. *See* Pet. 19 (citing Ex. 1003 ¶ 99).

IPR2017-00660

Patent 9,241,261 B2

Sections 5.3.3.2.1 and 5.3.3.3.1 of TS 23.401 address the TAU update procedure for an idle state UE transitioning from a pre-E-UTRAN network (e.g., 2G or 3G) to an E-UTRAN network. Figure 5.3.3.2-1 is reproduced below.

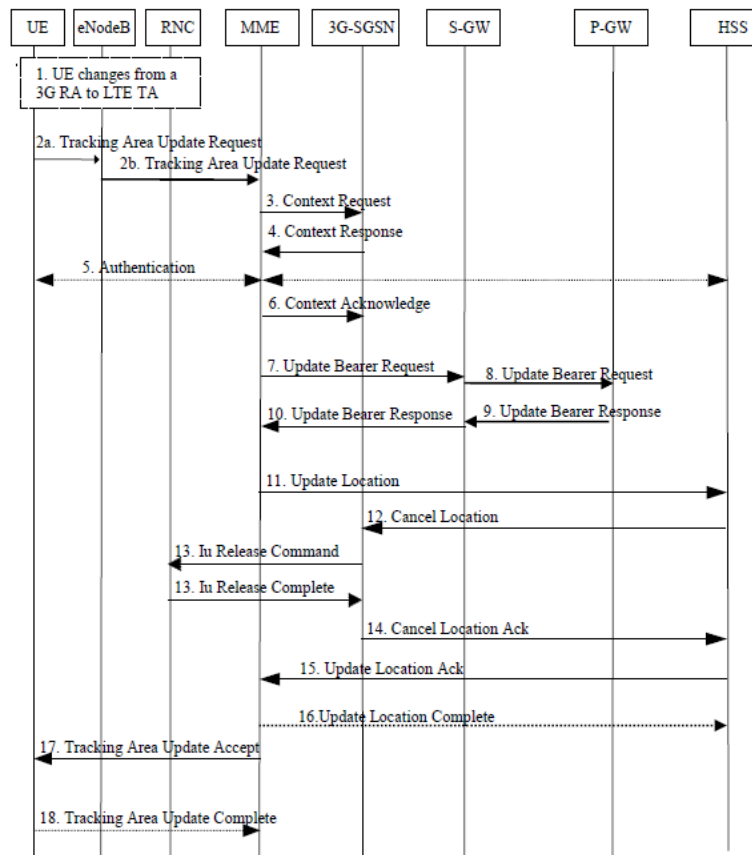


Figure 5.3.3.2-1: Tracking Area Update UTRAN to E-UTRAN

Figure 5.3.3.2-1, reproduced above, shows a 3G-to-LTE TAU update procedure. Ex. 1005 § 5.3.3.2.1. Figure 5.3.3.3-1 illustrates a similar procedure for a 2G-to-LTE transition. *Id.* § 5.3.3.3.1. As seen in Figure 5.3.3.2-1, a UE sends a TAU Request to the MME (via the eNodeB) at steps 2a/2b. *Id.* § 5.3.3.2.1. The MME sends a Context Request to the SGSN (step 3), and receives a Context Response back from the SGSN (step 4). *Id.* Authentication and security functions may be executed at step 5. *Id.*

IPR2017-00660

Patent 9,241,261 B2

2. Summary of TR 33.821 (Ex. 1006)

TR 33.821 is a Technical Report produced by a working group of 3GPP. Ex. 1006, Forward. TR 33.821 “addresses security aspects of the new LTE/SAE network, including how security is handled during mobility events to/from the new LTE network and legacy 2G/3G networks.” Pet. 19 (citing Ex. 1003 ¶ 99); *see* Ex. 1006 § 1. As described in TR 33.821, an LTE system has two layers of security, rather than the single layer used in pre-LTE systems, one of these two layers being NAS signaling security. Ex. 1006 § 4.

Figure 13 of TR 33.821 is reproduced below.

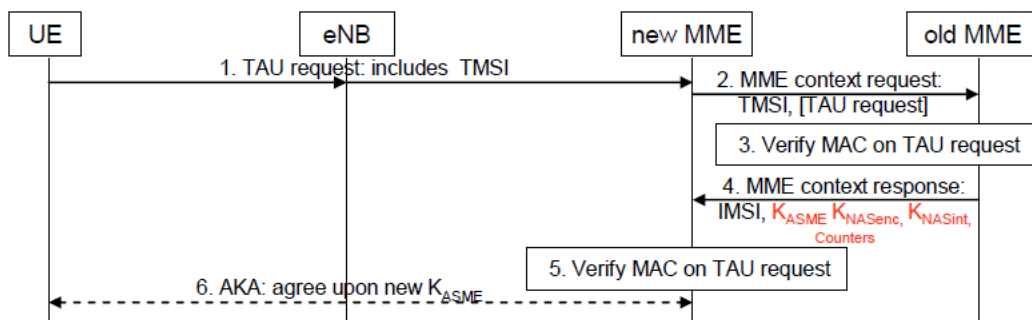


Figure 13: Key handling on idle mode mobility

Figure 13, reproduced above, illustrates a procedure for key handling during idle mode mobility. *Id.* § 7.4.11.3. In relevant part, Figure 13 and the corresponding discussion describe that the MME Context Response includes specific keys, as well as the NAS algorithms and the UE’s security capabilities. *Id.*

3. Analysis

We first address Petitioner’s reasons to combine the references and then turn to particular disclosures of the references upon which Petitioner relies to teach each element of the independent claims. We use the element

IPR2017-00660

Patent 9,241,261 B2

numbering provided by Petitioner (*see supra* Section I.C.). Where Patent Owner has presented arguments in its Preliminary Response, we also address them below.

a. Reasons to Combine

Petitioner asserts that a person of ordinary skill in the art would have combined the teachings of TS 23.401 and TR 33.821 because “they are both concerned with cellular technology and more particularly they both address mobility issues between radio access networks and the implications of the addition of the 4G/LTE network to existing infrastructure.” Pet. 18–19 (citing Ex. 1003 ¶ 99). Petitioner further explains that the “documents provide views of the same subject matter from the different perspectives of the working groups which authored the documents” and that a person of ordinary skill in the art “would know that in order to implement the security negotiation in 4G/LTE networks in the architecture proposed in TS 23.401, they would need to look at both the architecture and security documentation.” *Id.* at 19–20 (citing Ex. 1003 ¶ 99); *see also* Ex. 1003 ¶ 98 (“A person of ordinary skill in the art would have been familiar with the working groups and would have known that many 3GPP documents must necessarily be read together in order to implement the design features contained therein.”). Finally, Petitioner asserts that TR 33.821 explicitly directs the reader to TS 23.401 when considering idle mode mobility. Pet. 20 (citing Ex. 1006 § 7.4.11.3); *see also* Ex. 1003 ¶ 100 (“[T]he documents themselves direct those of ordinary skill to evaluate both documents in conjunction with one another.”). Thus, according to Petitioner, “a person of ordinary skill in the art would have been motivated

IPR2017-00660

Patent 9,241,261 B2

to combine the teachings of TS 23.401 and TR 33.821 to fully describe a known solution to a known problem.” Pet. 20; Ex. 1003 ¶ 102.

Patent Owner argues that “a ‘Petitioner’s observation that both references . . . are from the same field of endeavor falls short of an adequate rationale.’” Prelim. Resp. 67 (citing *Spectrum Brands, Inc. v. ASSA ABLOY AB*, Case IPR2015-01563, slip op. at 19 (PTAB Jan. 15 2016) (Paper 7)). While we agree with Patent Owner that such an assertion alone may be insufficient rationale, as noted above, Petitioner provides more than a simple assertion that the references are from the same field, and provides additional reasons a person of ordinary skill in the art would have combined the references.

Patent Owner further argues that a person of ordinary skill in the art “seeking to support key handling during idle mode mobility between a 2G/3G network and an LTE network, for example, would have found no solution in TR 33.821.” *Id.* at 68. Based on the record now before us, however we credit Dr. Lyon’s testimony in this regard and are persuaded that “a person of ordinary skill in the art would have been motivated to combine the teachings of TS 23.401 and TR 33.821 to fully describe a known solution to a known problem.” Ex. 1003 ¶ 102; *see also Estee Lauder Inc. v. L’Oreal, S.A.*, 129 F.3d 588, 595 (Fed. Cir. 1997) (“[A]rguments of counsel cannot take the place of evidence lacking in the record.”) (internal citations and quotation marks omitted).

IPR2017-00660

Patent 9,241,261 B2

Based on the record now before us, we are persuaded that Petitioner has articulated sufficient reasoning⁶ why it would have been obvious to combine these references in the proposed manner.

b. Claim Elements 1 Pre, 9 Pre, 17 Pre – Preambles

Claim 1 recites a “method of security negotiation for idle state mobility from a first network to a long term evolution (LTE) network using a mobility management entity (MME).”⁷ As discussed above, each of TS 23.401 and TR 33.821 teaches a method and communications system for security negotiation for idle state mobility from a first network to an LTE network. *See* Pet. 20–21 (citing Ex. 1003 ¶¶ 103, 133, 161; Ex. 1005 §§ 5.3.3.2, 5.3.3.3.1; Ex. 1006 §§ 7.4.10, 7.4.11).

Patent Owner, at this stage of the proceeding, has not presented specific arguments regarding this claim limitation. On the record now before us, we are persuaded that Petitioner has shown a reasonable likelihood of demonstrating that the asserted combination teaches or suggests this limitation of the claims.

⁶ Petitioner also argues that “the inter-dependent nature of these documents was recognized by applicant, as both TS 23.401 and TR 33.821 were cited on the face of the patent.” Pet. 20. We agree with Patent Owner that “the fact that the applicant cited the TS 23.401 and TR 33.821 references to the examiner is in no way an admission or recognition that these references are ‘interdependent’” (Prelim. Resp. 68), and we do not find this portion of Petitioner’s argument persuasive.

⁷ Petitioner addresses independent claims 1, 9, and 17 together. *See, e.g.*, Pet. 20–21. For convenience we reproduce only the language of independent claim 1. Claims 9 and 17 recite similar limitations.

IPR2017-00660

Patent 9,241,261 B2

*c. Claim Elements 1A, 9B, 17B – Authentication
Vector-Related Key*

Claim 1 recites “transmitting an authentication vector-related key from a service general packet radio service (GPRS) support node (SGSN) in the first network to the MME.” Regarding this claim feature, Petitioner points to Step 4 in Figures 5.3.3.2-1 and 5.3.3.3-1 of TS 23.401, each of which discloses transmitting a context response from an SGSN to an MME. Pet. 21–23 (citing Ex. 1003 ¶¶ 104, 137, 165; Ex. 1005 §§ 5.3.3.2.1, 5.3.3.3.1). According to Petitioner, a person of ordinary skill in the art “would have known that a context response contains authentication vector-related keys Kc or CK and IK.” *Id.* at 23–24 (citing Ex. 1003 ¶¶ 104–105, 137–138, 165–166; Ex. 1005 §§ 5.3.3.2, 5.3.3.3.1). As further support, Petitioner points to TR 33.821, which discloses transferring authentication vectors from 2G/3G SGSN to MME (*id.* at 24 (citing Ex. 1006 § 7.4.3.2)), and to Figure 13 of TR 33.821, which specifically “discloses transmitting a context response to an MME that contains encryption and integrity keys that are the 4G version of the 3G keys, CK, IK, which are authentication vector-related keys that are contained in authentication vectors” (*id.* (citing Ex. 1003 ¶¶ 106–107, 138–139, 166–167; Ex. 1006 § 7.4.11.3)).

Patent Owner asserts that “Petitioner is incorrect in asserting that a [person of ordinary skill in the art] would have understood that the step 4 context responses [would] have included security information, let alone AV-related keys.” Prelim. Resp. 35. Patent Owner asserts that, instead, “Authentication” and “Security Functions” are performed in Step 5, which relies on communications between the UE, MME, and Home Subscriber

IPR2017-00660

Patent 9,241,261 B2

Service (HSS), rather than the SGSN. *Id.* Patent Owner also argues that certain of Petitioner’s evidence is directed to the transfer of authentication vectors during an inter-RAT handover (i.e., during active mode) rather than in the context of idle state mobility, or to an LTE-to-LTE transfer rather than a 2G/3G-to-LTE context. *Id.* at 42–45.

Patent Owner, however, has not, at this stage of the proceeding, produced persuasive evidence to rebut Dr. Lyon’s testimony that this claim element would have been obvious to a person of ordinary skill in the art (*see, e.g.*, Ex. 1003 ¶¶ 104–107), which we credit based on the record now before us. *See also Estee Lauder*, 129 F.3d at 595 (“[A]rguments of counsel cannot take the place of evidence lacking in the record.”). Accordingly, we are persuaded that Petitioner has shown a reasonable likelihood of demonstrating that the asserted combination teaches or suggests this limitation of the claims.

d. Claim Elements 1B, 9A, 17A – NAS Security Capabilities

Claim 1 recites “receiving security capabilities of a user equipment (UE) including non-access stratum (NAS) security capabilities of the UE from the UE.” Regarding this claim feature, Petitioner points to Steps 2a and 2b in Figures 5.3.3.2-1 and 5.3.3.3-1 of TS 23.401, each of which discloses a UE sending a TAU Request to the MME. Pet. 25–27 (citing Ex. 1003 ¶¶ 108, 134, 162; Ex. 1005 §§ 5.3.3.2.1, 5.3.3.3.1). According to TS 23.401, the TAU Request includes, *inter alia*, a “UE Network Capability.” *Id.* at 25 (citing Ex. 1005 §§ 5.3.3.2.1, 5.3.3.3.1). According to Petitioner, a person of ordinary skill in the art “would have known that ‘UE Network Capability’ refers to the encryption and integrity algorithms supported in the UE.” *Id.* at 27–28 (citing Ex. 1003 ¶¶ 109, 135, 163;

IPR2017-00660

Patent 9,241,261 B2

Ex. 1006 § 7.4.13.3). Petitioner further points to TR 33.821 for teaching that “the NAS layer of security would be implemented in 4G and that NAS security capabilities would need to be communicated to the MME in order for UE-MME NAS communications to commence.” *Id.* at 28 (citing Ex. 1003 ¶¶ 110, 136, 164; Ex. 1006 §§ 4, 7.4.13.3).

Patent Owner argues that “Petitioner’s assertion that a [person of ordinary skill in the art] would have known that the ‘UE Network Capability’ is the same as the claimed NAS security capabilities of a UE is incorrect.” Prelim. Resp. 46. Patent Owner asserts that, instead, “Authentication” and “Security Functions” are performed in Step 5. *See id.* at 46–47. Finally, Patent Owner argues that TR 33.821 teaches that the NAS security capabilities are sent by the old MME, not the UE. *Id.* at 48–49.

Patent Owner’s final argument is directed to TR 33.821 individually, rather than to Petitioner’s asserted combination as a whole. *See In re Keller*, 642 F.2d 413, 426 (CCPA 1981) (holding that nonobviousness cannot be established by attacking references individually where the ground of unpatentability is based upon the teachings of a combination of references). Further, Patent Owner has not, at this stage of the proceeding, produced persuasive evidence to rebut Dr. Lyon’s testimony that this claim element would have been obvious to a person of ordinary skill in the art (*see, e.g.*, Ex. 1003 ¶¶ 108–110), which we credit based on the record now before us. *See also Estee Lauder*, 129 F.3d at 595 (“[A]rguments of counsel cannot take the place of evidence lacking in the record.”). Accordingly, we are persuaded that Petitioner has shown a reasonable likelihood of demonstrating that the asserted combination teaches or suggests this limitation of the claims.

IPR2017-00660

Patent 9,241,261 B2

e. Claim Elements 1C, 9C, 17D – Selecting NAS Security Algorithm

Claim 1 recites “selecting a NAS security algorithm supported by the NAS security capabilities of the UE.” Regarding this claim feature, Petitioner points to Step 7 of Figure 13 of TR 33.821, which discloses an MME selecting a NAS security algorithm. Pet. 28 (citing Ex. 1003 ¶¶ 111, 140, 170; Ex. 1006 §§ 7.4.11.3, 7.4.13.4.1). Petitioner also points to Step 3 of Figure 5.5.2.2-1 of TS 23.401, which discloses that the “target MME selects the ciphering algorithm to use.” *Id.* at 28–29 (citing Ex. 1003 ¶¶ 113, 143, 172; Ex. 1005 § 5.5.2.2.1).

According to Petitioner, a person of ordinary skill in the art “would have understood that the selection of NAS security algorithms for the generation of NAS security keys is a process that depends primarily upon the security capabilities of the UE and the ‘serving network entity’ or MME.” *Id.* at 29 (citing Ex. 1003 ¶¶ 112–113, 142, 171–172; Ex. 1006 § 7.4.13.3). Petitioner asserts that because the process depends on the UE and the target MME, a person of skill in the art would have looked to the algorithm selection process described in TR 33.821 (LTE to LTE TAU) to determine how the selection should occur in a 3G to LTE TAU procedure. *Id.* (citing Ex. 1003 ¶¶ 112–114, 142, 171–173; Ex. 1005 § 5.5.2.2.1; Ex. 1006 § 7.4.11.3).

Patent Owner, at this stage of the proceeding, has not presented specific arguments regarding this claim limitation. On the record now before us, we are persuaded that Petitioner has shown a reasonable likelihood of demonstrating that the asserted combination teaches or suggests this limitation of the claims.

IPR2017-00660

Patent 9,241,261 B2

f. Claim Elements 1D, 9D, 17E – Sending a Message that Indicates the Selected NAS Security Algorithm

Claim 1 recites “sending a message that indicates the selected NAS security algorithm to the UE.” Regarding this claim feature, Petitioner points to Step 7 of Figure 13 of TR 33.821, which discloses that the “MME includes the NAS algorithm identifiers in the TAU accept message and integrity protects the message with the new NAS integrity key.” Pet. 30 (citing Ex. 1006 § 7.4.11.3). According to Petitioner, a person of ordinary skill in the art “would have known that a TAU accept message is sent from an MME to a UE and [would have] known to include an indication of the selected algorithms in the TAU accept message.” *Id.* (citing Ex. 1003 ¶¶ 115, 140–141, 174; Ex. 1005 §§ 5.3.3.2, 5.3.3.3.1; Ex. 1006 § 7.4.11.3).

Petitioner further points to Step 3, described below Figure 5.5.2.2-1 of TS 23.401, which teaches that the selected ciphering algorithm is sent from the target eNodeB to the UE. *Id.* (citing Ex. 1005, § 5.5.2.2.1; Ex. 1006 § 7.4.12.2). Dr. Lyon testifies that “[a] person of ordinary skill in the art would have known to . . . include the step of sending a message that indicates the selected NAS security algorithm from the MME to the UE.” Ex. 1003 ¶ 116.

Patent Owner argues that Petitioner’s evidence is directed to the LTE-to-LTE transfer context rather than to a 2G/3G-to-LTE context. Prelim. Resp. 49–50. Patent Owner also argues that the Authentication and Security Functions are performed in Step 5 of both §§ 5.3.3.2.1 and 5.3.3.3.1 of TS 23.401. *See id.* at 50. Finally, Patent Owner argues that Petitioner’s evidence is directed to inter-RAT handovers rather than to idle state updates. *Id.* at 51–52.

IPR2017-00660

Patent 9,241,261 B2

Patent Owner, however, has not, at this stage of the proceeding, produced persuasive evidence to rebut Dr. Lyon’s testimony that this claim element would have been obvious to a person of ordinary skill in the art (*see, e.g.*, Ex. 1003 ¶¶ 115–116), which we credit based on the record now before us. *See also Estee Lauder*, 129 F.3d at 595 (“[A]rguments of counsel cannot take the place of evidence lacking in the record.”). Accordingly, we are persuaded that Petitioner has shown a reasonable likelihood of demonstrating that the asserted combination teaches or suggests this limitation of the claims.

g. Claim Elements 1E, 9E, 17F – Deriving NAS Protection Key

Claim 1 recites “deriving a NAS protection key with the selected NAS security algorithm from the authentication vector-related key.” Regarding this claim feature, Petitioner points to TR 33.821 as disclosing “deriving a NAS protection key with the selected NAS security algorithm from the AV-related key.” Pet. 31 (citing Ex. 1003 ¶¶ 120–121, 146–147, 179–180; Ex. 1006 § 7.4.3.2). According to Petitioner, a person of ordinary skill in the art “would have known that one could derive a root key . . . from the authentication vector-related keys, . . . and in turn derive the NAS protection keys” *Id.* (citing Ex. 1003 ¶¶ 120–124, 146–150, 179–183; Ex. 1006 §§ 7.4.3.2, 7.4.7.2).

Patent Owner, at this stage of the proceeding, has not presented specific arguments regarding this claim limitation. On the record now before us, we are persuaded that Petitioner has shown a reasonable likelihood of demonstrating that the asserted combination teaches or suggests this limitation of the claims.

IPR2017-00660

Patent 9,241,261 B2

h. Claim Element 9F – Modules are in MME

Claim 9 additionally recites that “the acquisition module, the selection module and the key derivation module are included in a mobility management entity (MME).” Regarding this claim feature, Petitioner points to its previous discussion regarding claim elements 9A, 9C, 9D, and 9E, arguing that if the various steps are performed by the MME, the “MME necessarily contains hardware or software that accomplishes the recited function[s].” Pet. 32 (citing Ex. 1003 ¶ 151).

Patent Owner, at this stage of the proceeding, has not presented specific arguments regarding this claim limitation. On the record now before us, we are persuaded that Petitioner has shown a reasonable likelihood of demonstrating that the asserted combination teaches or suggests this limitation of the claims.

i. Claim Element 17C – MME is in LTE Network

Claim 17 additionally recites that “the MME is in the LTE network.” Regarding this claim feature, Petitioner points to Figures 5.3.3.2-1 and 5.3.3.3-1 of TS 23.401, which show the MME is in the E-UTRAN (LTE) network. Pet. 32 (citing Ex. 1003 ¶ 169; Ex. 1005 §§ 5.3.3.2.1, 5.3.3.3.1); *see also* Ex. 1006, Fig. 1, § 4 (showing MME in E-UTRAN (LTE) network).

Patent Owner, at this stage of the proceeding, has not presented specific arguments regarding this claim limitation. On the record now before us, we are persuaded that Petitioner has shown a reasonable likelihood of demonstrating that the asserted combination teaches or suggests this limitation of the claims.

IPR2017-00660

Patent 9,241,261 B2

j. Conclusion Regarding Independent Claims 1, 9, and 17

We are persuaded, on the record now before us, that Petitioner has shown sufficiently that the combination of TS 23.401 and TR 33.821 teaches or suggests all of the limitations of claims 1, 9, and 17, and has articulated sufficient reasoning why it would have been obvious to combine these references in the proposed manner. We, thus, are persuaded that Petitioner has demonstrated a reasonable likelihood of succeeding in showing that the combination of TS 23.401 and TR 33.821 renders obvious claims 1, 9, and 17.

k. Dependent Claims 2–5, 7, 8, 10–13, 15, 16, 18–21, 23, and 24

Regarding dependent claims 2–5, 7, 8, 10–13, 15, 16, 18–21, 23, and 24, Petitioner provides arguments and evidence as to how each claim limitation is taught or suggested by the cited combination of TS 23.401 and TR 33.821, and relies upon Dr. Lyon’s testimony. *See* Pet. 32–37. At this stage of the proceeding, Patent Owner has not yet substantively addressed claims 2–5, 7, 8, 10–13, 15, 16, 18–21, 23, and 24, apart from its arguments with respect to the independent claims generally, which we have addressed above. We are persuaded, on the record now before us, that Petitioner has shown sufficiently for purposes of this Decision that the combination of TS 23.401 and TR 33.821 teaches or suggests all of the limitations of claims 2–5, 7, 8, 10–13, 15, 16, 18–21, 23, and 24, and has articulated sufficient reasoning why it would have been obvious to combine these references in the proposed manner. We, thus, are persuaded that Petitioner has demonstrated a reasonable likelihood of succeeding in showing that the

IPR2017-00660

Patent 9,241,261 B2

combination of TS 23.401 and TR 33.821 renders obvious claims 2–5, 7, 8, 10–13, 15, 16, 18–21, 23, and 24.

F. Asserted Obviousness in View of TS 23.060 and TR 33.821

Petitioner asserts that claims 1–5, 7–13, 15–21, 23, and 24 are unpatentable under 35 U.S.C. § 103(a) as obvious in view of TS 23.060 and TR 33.821. Pet. 37–56. In addition to the arguments that TR 33.821 does not qualify as prior art, and that Petitioner does not appropriately address the *Graham* factors (both discussed above), Patent Owner argues that the cited combination does not disclose all elements of the independent claims (Prelim. Resp. 52–60), and that Petitioner has not provided sufficient reasons to combine the references (*id.* at 69–70).

We have reviewed the parties’ contentions and supporting evidence. Given the evidence on this record, and for the reasons explained below, we determine that the information presented shows a reasonable likelihood that Petitioner would prevail on this asserted ground.

1. Summary of TS 23.060 (Ex. 1007)

TS 23.060 is a Technical Specification produced by a working group of 3GPP. Ex. 1007, Forward. TS 23.060 addresses the operation of the 2G/3G GPRS network during mobility events. Pet. 38; Ex. 1003 ¶ 193.

IPR2017-00660

Patent 9,241,261 B2

Figure 33 of TS 23.060 is reproduced below.

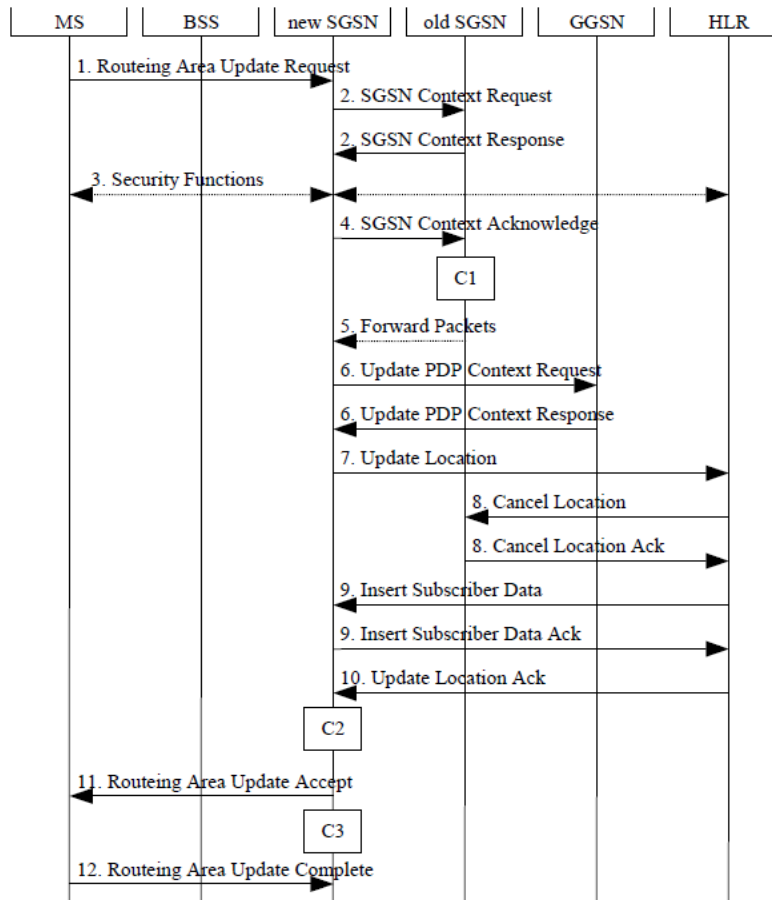


Figure 33: Inter SGSN Routeing Area Update Procedure

Figure 33, reproduced above, shows a procedure for a Routeing Area Update when a UE is moving from an old SGSN to a new SGSN. Ex. 1007

§ 6.9.1.2.2. In step 1, a target network element (SGSN) receives a Routing Area Update (RAU) request from a UE that contains security capabilities.

Id. (“The MS sends a Routeing Area Update Request message (P-TMSI . . . MS Network Capability) to the new SGSN.”). In step 2, the old SGSN sends a Context Response, including among other things authentication vector-related keys. *Id.*; *see also id.* § 13.2 (Table 6).

IPR2017-00660

Patent 9,241,261 B2

2. Analysis

As discussed above, TS 23.060 teaches security procedures for mobility between 2G/3G networks. Petitioner relies on TR 33.821 for features specific to transferring to the LTE network. According to Petitioner, “[o]ne wanting to update the RAU procedures of TS 23.060 in order to implement the new 4G/LTE network (and its corresponding security requirements) would . . . naturally look to TR 33.821 and would expect predictable results,” because TR 33.821 “addresses security aspects of the new LTE/SAE network, including how security is handled during mobility events to/from the new LTE network and legacy 2G/3G networks.” Pet. 38 (citing Ex. 1003 ¶ 194); *see also* Ex. 1003 ¶ 195 (indicating that this is in fact what 3GPP designers did).

Petitioner provides similar arguments and evidence regarding the combination of TS 23.060 and TR 33.821 as applied to the independent claims as discussed above with respect to the combination of TS 23.401 and TR 33.821, and relies on the testimony of Dr. Lyon. *See* Pet. 37–51 (citing Ex. 1003 ¶¶ 194–195, 199–214, 218–222, 231–242, 247–251, 260–274, 278–282; Ex. 1007 §§ 6.9.1.2.2, 6.9.1.3.2, 6.9.2.1, 6.14.2, 13.2; Ex. 1006 §§ 4, 7.4.3.2, 7.4.7.2, 7.4.10, 7.4.11, 7.4.11.3, 7.4.12.2, 7.4.13.3, 7.4.13.4.1, Figs. 13, 17). Likewise, Patent Owner similarly disagrees with certain portions of Petitioner’s arguments and Dr. Lyon’s testimony (Prelim. Resp. 52–60, 69–70), but at this stage of the proceeding has not produced persuasive evidence rebutting Dr. Lyon’s testimony that the challenged claims would have been obvious to a person of ordinary skill in the art, which we credit based on the record now before us. *See also Estee Lauder*,

IPR2017-00660

Patent 9,241,261 B2

129 F.3d at 595 (“[A]rguments of counsel cannot take the place of evidence lacking in the record.”).

Accordingly, we are persuaded that Petitioner has shown a reasonable likelihood of demonstrating that the asserted combination renders obvious the challenged independent claims. We also have reviewed Petitioner’s contentions regarding the challenged dependent claims, and are similarly persuaded that Petitioner has shown a reasonable likelihood of demonstrating that the asserted combination renders obvious the challenged dependent claims. *See* Pet. 51–56.

G. Asserted Obviousness in View of Song and TR 33.821

Petitioner asserts that claims 1–5, 7–13, 15–21, 23, and 24 are unpatentable under 35 U.S.C. § 103(a) as obvious in view of Song and TR 33.821. Pet. 56–72. In addition to the arguments that TR 33.821 does not qualify as prior art, and that Petitioner does not appropriately address the *Graham* factors (both discussed above), Patent Owner argues that the cited combination does not disclose all elements of the independent claims (Prelim. Resp. 60–67), and that Petitioner has not provided sufficient reasons to combine the references (*id.* at 70–72).

We have reviewed the parties’ contentions and supporting evidence. Given the evidence on this record, and for the reasons explained below, we determine that the information presented shows a reasonable likelihood that Petitioner would prevail on this asserted ground.

1. Summary of Song (Ex. 1008)

Song relates to a method and system for “optimizing [an] authentication procedure” “during handover [from] an existing system to a

IPR2017-00660

Patent 9,241,261 B2

new system.” Ex. 1008, at [54], [57]. Figure 8 of Song is reproduced below.

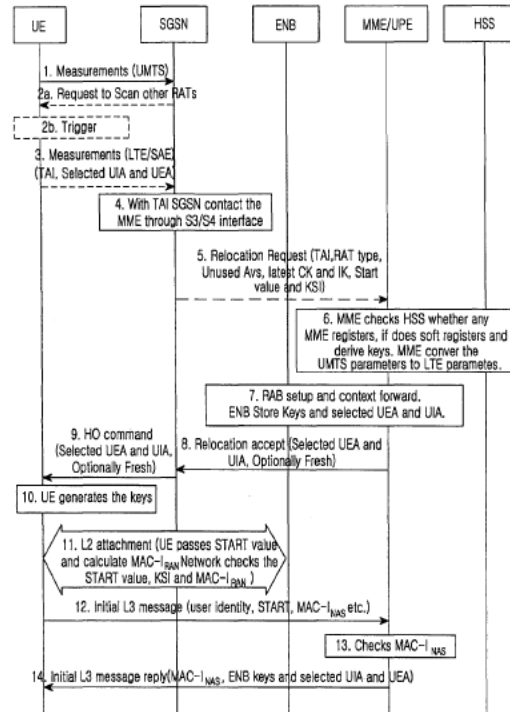


FIG.8

Figure 8, reproduced above, illustrates the message flow procedure for a handover from a 3G system to an LTE system. *Id.* at 4:65–67. According to Song, the UE sends the selected UMTS Integrity Algorithm (UIA) and UMTS Encryption Algorithm (UEA) to the core network, at step 3, and the SGSN sends a HO request message, containing security context and keys among other things, to the MME, at step 5. *Id.* at 12:13–15, 12:20–24. At step 7, the MME distributes the security context, including keys. *Id.* at 12:36–39. At steps 8 and 9, the MME sends the HO accept message (which includes the selected UEA and UIA) to the SGSN, and the SGSN forwards it to the UE. *Id.* at 12:40–45.

IPR2017-00660

Patent 9,241,261 B2

2. Analysis

Song teaches authentication procedures for mobility between 2G, 3G, 4G, and non-3GPP networks. Petitioner relies on TR 33.821 for security features specific to the LTE network. According to Petitioner, “the disclosure of TR 33.821 simply is an improvement to the architecture and security disclosed by Song that is well with the ordinary capabilities of a person of ordinary skill in the art.” Pet. 57; *see* Ex. 1003 ¶¶ 293–297.

Petitioner provides similar arguments and evidence regarding the combination of Song and TR 33.821 as applied to the independent claims as discussed above with respect to the combination of TS 23.401 and TR 33.821, and relies on the testimony of Dr. Lyon. *See* Pet. 56–67 (citing Ex. 1003 ¶¶ 298–312, 316–320, 328–339, 343–347, 349, 357–358, 361–370, 374–378; Ex. 1008, at [57], 1:25–2:6, 2:14–45, 3:54–64, 4:28–33, 12:1–13:5, Fig. 8; Ex. 1006 §§ 4, 7.4.3.2, 7.4.7.2, 7.4.10, 7.4.11, 7.4.11.3, 7.4.12.2, 7.4.13.3, Fig. 13). Likewise, Patent Owner similarly disagrees with certain portions of Petitioner’s arguments and Dr. Lyon’s testimony (Prelim. Resp. 60–67, 70–72), but at this stage of the proceeding has not produced persuasive evidence rebutting Dr. Lyon’s testimony that the challenged claims would have been obvious to a person of ordinary skill in the art, which we credit based on the record now before us. *See also Estee Lauder*, 129 F.3d at 595 (“[A]rguments of counsel cannot take the place of evidence lacking in the record.”).

Accordingly, we are persuaded that Petitioner has shown a reasonable likelihood of demonstrating that the asserted combination renders obvious the challenged independent claims. We also have reviewed Petitioner’s contentions regarding the challenged dependent claims, and are similarly

IPR2017-00660

Patent 9,241,261 B2

persuaded that Petitioner has shown a reasonable likelihood of demonstrating that the asserted combination renders obvious the challenged dependent claims. *See* Pet. 67–72.

H. Redundancy

Patent Owner argues that Petitioner “fail[s] to demonstrate the non-redundancy of its proposed grounds.” Prelim. Resp. 73. Patent Owner argues that we should “deny at least two of Petitioner’s proposed grounds as redundant.” *See id.* at 73–75. In this case, we exercise our discretion and substantively consider in our Decision each of the asserted grounds advanced by Petitioner. 37 C.F.R. § 42.108(a).

III. CONCLUSION

As discussed above, we institute an *inter partes* review of claims 1–5, 7–13, 15–21, 23, and 24 of the ’261 patent. At this preliminary stage in the proceeding, we have not made a final determination with respect to the patentability of any challenged claim or the construction of any claim term.

IV. ORDER

Accordingly, it is

ORDERED that pursuant to 35 U.S.C. § 314(a), an *inter partes* review is hereby instituted as to claims 1–5, 7–13, 15–21, 23, and 24 of U.S. Patent No. 9,241,261 B2 on the following grounds:

Whether claims 1–5, 7–13, 15–21, 23, and 24 would have been obvious under 35 U.S.C. § 103(a) in view of TS 23.401 and TR 33.821;

IPR2017-00660

Patent 9,241,261 B2

Whether claims 1–5, 7–13, 15–21, 23, and 24 would have been obvious under 35 U.S.C. § 103(a) in view of TS 23.060 and TR 33.821;

Whether claims 1–5, 7–13, 15–21, 23, and 24 would have been obvious under 35 U.S.C. § 103(a) in view of Song and TR 33.821;

FURTHER ORDERED that no other ground of unpatentability is authorized for this *inter partes* review;

FURTHER ORDERED that the parties shall address, in the Patent Owner Response and Reply thereto, whether the “module” limitations of claim 9 are means-plus-function limitations pursuant to 35 U.S.C. § 112, ¶ 6; and

FURTHER ORDERED that pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, notice is hereby given of the institution of a trial; the trial will commence on the entry date of this decision.

IPR2017-00660

Patent 9,241,261 B2

PETITIONER:

S. Benjamin Pleune

Ross R. Barton

Samuel C. Merritt

John D. Haynes

Scott Stevens

Robert J. Caison

J. Ravindra Fernando

Christopher Douglas

Derek S. Neilson

Michael Deane

ALSTON & BIRD

ben.pleune@alston.com

ross.barton@alston.com

sam.merritt@alston.com

john.haynes@alston.com

scott.stevens@alston.com

robert.caison@alston.com

ravi.fernando@alston.com

christopher.douglas@alston.com

derek.neilson@alston.com

Michael.deane@alston.com

PATENT OWNER:

Robert Devoto

W. Karl Renner

Jeremy Monaldo

Andrew Patrick

Ayan Roy-Chowdhury

Richard A. Sterba

Brian G. Strand

FISH & RICHARDSON P.C.

devoto@fr.com

AXF-PTAB@fr.com

jjm@fr.com

patrick@fr.com

roy-chowdhury@fr.com

IPR2017-00660

Patent 9,241,261 B2

sterba@fr.com

strand@fr.com